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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,627	07/31/2003	Martin L. Hage	10-9403	4760

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INSKEEP INTELLECTUAL PROPERTY GROUP, INC
1225 W. 190TH STREET
SUITE 205
GARDENA, CA 90248

EXAMINER

MARKHAM, WESLEY D

ART UNIT

PAPER NUMBER

1762

DATE MAILED: 09/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,627

Applicant(s)

HAGE ET AL.

Examiner

Wesley D Markham

Art Unit

1762

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2004.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
4a) Of the above claim(s) 10 and 11 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-9 and 12-15 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2 total.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I, Claims 1 – 9 and 12 – 15, drawn to a method of coating an optical element, in the reply filed on 8/11/2004 is acknowledged.

Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 10 and 11 stand withdrawn from further consideration by the examiner as being drawn to a non-elected invention.

Information Disclosure Statement

2. The IDSs (2) filed by the applicant on 2/3/2004 and 8/17/2004 are acknowledged, and the documents listed thereon have been considered by the examiner as indicated on the attached copies of the PTO/SB/08 forms.

Specification

3. The use of the trademarks CR-39, LEXAN, MAKROLON, MR-6, MR-7, and MR-8 has been noted in this application (see paragraphs [0016] and [0036]). They should be capitalized wherever they appear and be accompanied by the generic terminology. Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Objections

4. Claims 3 – 5, 9, and 15 are objected to because of the following informalities:

- Claim 3: The phrase, “wherein the multifunctional compound is multifunctional carboxylic acids, multifunctional anhydrides and combinations thereof” appears to contain a typographical error and should read, “wherein the multifunctional compound is selected from the group consisting of multifunctional carboxylic acids, multifunctional anhydrides and combinations thereof” in order to be grammatically correct.
- Claim 4: The phrase “wherein the multifunctional compound is multifunctional anhydrides” appears to contain a typographical error and should read, “wherein the multifunctional compound is multifunctional anhydride” in order to be grammatically correct.
- Claim 5, line 2: The word “precurring” is misspelled “procuring”.
- Claim 9, line 1: The word “of” is missing between the words “method” and “coating”.
- Claim 15, line 2: The word, “comprises” appears to be a typographical error and should read, “comprising”.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 2 – 4, 7 – 9, 14, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for the following reasons:

- Claim 2 (from which Claims 3 and 4 depend): There is no antecedent basis for “the epoxy functional silane”, thereby rendering the scope of Claims 2 – 4 unclear (i.e., because it is unclear (1) whether or not the claims require an “epoxy functional silane”, and if so, (2) what “the epoxy functional silane” refers to).
- Claim 7: There is no antecedent basis for “the organic functional silane”, thereby rendering the scope of the claim unclear (i.e., because it is unclear what “the organic functional silane” refers to in the context of Claim 7).
- Claim 8: There is no antecedent basis for “the epoxy silane compound containing at least one epoxy group...”, thereby rendering the scope of the claim unclear (i.e., because it is unclear what “the epoxy silane compound containing at least one epoxy group...” refers to in the context of Claim 8).
- Claim 9: There is no antecedent basis for “the silane compound containing at least one epoxy group and at least two alkoxy groups...”, thereby rendering the scope of the claim unclear (i.e., because it is unclear what “the silane compound containing at least one epoxy group and at least two

alkoxy groups..." refers to in the context of Claim 9).

- Claim 14: There is no antecedent basis for "the thermal curing", thereby rendering the scope of the claim unclear (i.e., because it is unclear whether "the thermal curing" refers to the "thermally pre-curing" or the "curing" in previous Claim 12).
- Claim 15: There is no antecedent basis for "the epoxy functional silane", thereby rendering the scope of the claim unclear (i.e., because it is unclear (1) whether or not the claims require an "epoxy functional silane", and if so, (2) what "the epoxy functional silane" refers to).

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969). A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with

this application. See 37 CFR 1.130(b). Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. **Claims 12 – 15** are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1, 3, 5 – 10, and 17 of copending Application No. 10/739,630 (i.e., US 2004/0156983 A1). Although the conflicting claims are not identical, they are not patentably distinct from each other because Claims 1, 3, 5 – 10, and 17 of copending Application No. 10/739,630 teach all the limitations of Claims 12 – 15 of the instant application, such as coating an eye element, specifically a lens, by providing a thermally curable coating, spin coating one surface of the lens with the thermally curable coating, thermally pre-curing the coating to a tack-free state, and thermally curing the coating to its final state (see Claims 1, 3, and 17 of '983), wherein the thermal pre-cure and the thermal curing steps have a temperature and time as claimed by the applicant (see Claim 3 of '983), and wherein the coating is an aqueous organic solvent coating comprising the components claimed by the applicant (see Claims 6 – 9 of '983), as well as teaching additional process steps, such as depositing and curing an anti-reflective coating (ARC) and a hydrophobic layer. Therefore, it would have been obvious to one of ordinary skill in the art to perform the method of Claims 12 – 15 of the instant application because one would have done so while practicing the method taught in Claims 1, 3, 5 – 10, and 17 of copending Application No.

10/739,630 (i.e., US 2004/0156983 A1). Please note that the examiner has reasonably interpreted a curing temperature of 130° F (Claim 3 of '983) to be "in the range of about 150° F to 400° F", as required by Claim 14.

9. **Claims 1 – 9** are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1, 3, 5 – 10, and 17 of copending Application No. 10/739,630 (i.e., US 2004/0156983 A1) in view of Smith et al. (USPN 6,129,042). Although the conflicting claims are not identical, they are not patentably distinct from each other because Claims 1, 3, 5 – 10, and 17 of copending Application No. 10/739,630 teach all the limitations of Claims 1 – 9 of the instant application (see paragraph 8 above) except for a method comprising washing the optical element (i.e., lens) with a high pressure water spray, and drying the optical element. However, Smith et al. teaches that it was known in the art at the time of the applicant's invention to wash an optical element (i.e., a lens) with a high-pressure water spray and then dry the optical element prior to spin-coating the lens (abstract, col.1, lines 7-39, col.2, lines 1-38, col.3, lines 15-31, col.20, lines 25-35). It would have been obvious to one of ordinary skill in the art to wash the lens of Claims 1 – 9 of the instant application with a high-pressure water spray and then dry the lens prior to spin-coating the lens with the reasonable expectation of successfully and advantageously obtaining a lens with a clean surface, thereby insuring that the subsequently applied coating has a high quality (i.e., due to the clean surface achieved in the washing step).

10. The aforementioned rejections are provisional obviousness-type double patenting rejections because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 12 – 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Lewis (USPN 6,265,029 B1).
13. Regarding independent **Claim 12**, Lewis teaches a method of coating an eye element, specifically a spectacle lens (Col.1, lines 11 – 22), the method comprising providing a thermally curable coating, spin coating one surface of the eye element with the thermally curable coating, thermally pre-curing the coating to a substantially tack-free state, and curing the coating to its final state (Abstract, Col.1, lines 11 – 22, Col.4, lines 35 – 67, Col.5, Col.6, lines 49 – 67, Col.7, lines 1 – 39, and Col.9, lines 17 – 33). Regarding **Claim 13**, Lewis also teaches that the thermal pre-cure lasts for no longer than about 10 minutes at a temperature of, e.g., 60° C (i.e., 140° F) (Col.9, lines 21 – 24), which the examiner has reasonably interpreted to be “in the range of about 150° F to 300° F”, as required by the claim. Regarding **Claim 14**,

Art Unit: 1762

Lewis also teaches that the thermal curing lasts for a predetermined period of time at a temperature in the range of about 150° F to 400° F (Col.9, lines 24 – 27).

14. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by Smith (USPN 5,728,758).

15. Regarding **Claim 12**, Smith teaches a method of coating an eye element, specifically a lens, the method comprising providing a thermally curable coating, spin coating one surface of the lens with the thermally curable coating, thermally pre-curing the coating to a substantially tack-free state, and curing the coating to its final state (Abstract, col.1, lines 15 - 17, col.7, lines 52 - 55, col.8, lines 50 - 67, col.9, lines 1 - 19, col.10, lines 38 - 67, col.11, lines 35 - 40).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each

claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

18. Claims 1 – 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Havey et al. (USPN 6,001,163) in view of Smith et al. (USPN 6,129,042), and in further view of Magne (US 2002/0041929 A1) and Smith (USPN 5,728,758).
19. Regarding independent **Claim 1**, Havey et al. teaches a method of coating an optical element comprising applying an aqueous organic solvent coating to at least one surface of the optical element by spin-coating (i.e., while the optical element spins), and thermally curing the aqueous organic solvent coating to obtain a coating having improved abrasion resistant properties (Abstract, cols.1-6, col.11, lines 34 - 67, col.12, lines 1 - 7, and the examples). Havey et al. does not explicitly teach washing the optical element with a high pressure water spray and drying the optical element. However, Smith et al. teaches that it was known in the art at the time of the applicant's invention to wash an optical element (i.e., a lens) with a high-pressure water spray and then dry the optical element prior to spin-coating the lens (Abstract, col.1, lines 7-39, col.2, lines 1-38, col.3, lines 15-31, col.20, lines 25-35). It would have been obvious to one of ordinary skill in the art to wash the lens of Havey et al. with a high-pressure water spray and then dry the lens prior to spin-coating the lens, as desired by Havey et al., with the reasonable expectation of successfully and advantageously obtaining a lens with a clean surface, thereby

insuring that the subsequently applied coating of Havey et al. has a high quality and adhesion to the lens (see, for example, col.8, lines 50 - 56 of Smith). The combination of Havey et al. and Smith et al. does not explicitly teach that the thermal curing is done by thermally pre-curing the coating to a tack-free state and then thermally curing the coating. However, Havey et al. does teach heat curing in general (col.12, lines 1-4). Magne teaches that, in the art of spin-coating and curing optical lenses, it is desirable in some cases to perform the curing process with interruptions in order to obtain a coating having enhanced adhesion and fewer irregularities (Abstract, paragraphs [0036], [0054], [0069], [0073], and [0087]). This pre-curing also allows secure handling of the lenses (paragraph [0073]).

Additionally, Smith teaches that coatings on optical lenses can be thermally pre-cured to a tack-free state prior to fully thermally curing the coating(s) (col.9, lines 1-19, col.10, lines 38-67, col.11, lines 35-40). Therefore, it would have been obvious to one of ordinary skill in the art to thermally pre-cure the coating of Havey et al. to a tack-free state prior to thermally curing the coating with the reasonable expectation of successfully and advantageously (1) facilitating handling of the lenses prior to full curing (i.e., due to the coating being in a tack-free state) and (2) providing a uniform coating with enhanced adhesion, as taught by Magne. Regarding **Claims 2 - 4 and 7 - 9**, Havey et al. also teaches the specifics of the applicant's claimed aqueous organic solvent coating / composition, specifically that the thermally curable coating comprises an aqueous organic solvent mixture including hydrolysis products and partial condensates of an organic functional silane, specifically the epoxy

functional silane compound claimed by the applicant, a tetrafunctional silane, and a multifunctional compound selected from the group consisting of carboxylic acids, anhydrides, and combinations thereof, particularly a multifunctional anhydride, and an amount of water sufficient to hydrolyze the epoxy functional silane and the tetrafunctional silane (Abstract, Col.1, lines 16 – 26 and 48 – 67, Col.2, lines 1 – 4, Col.4, lines 26 – 67, Cols.5 – 6, Col.7, lines 1 – 9). Regarding **Claim 6**, Havey et al. also teaches that the thermal curing is performed at a temperature in the range claimed by the applicant (col.12, lines 1-3). Regarding **Claims 5 and 6**, the aforementioned combination of references does not explicitly teach that the pre-curing is less than 10 minutes at a temperature range of about 150 to 300° F. However, it is clear from the applied references that the coating be pre-cured to a tack-free state prior to full curing. Additionally, the hard coating of Havey et al. can be cured at a wide variety of temperatures and for a wide variety of times (Col.12, lines 1 – 7), and the curing temperatures and times depend, at least to some extent, on the specific substrate utilized (Col.3, lines 38 – 46). Smith teaches that, although a range of temperatures is provided for drying (i.e., precuring) and curing the coating, it will be recognized by persons skilled in the art that other temperatures higher and lower than disclosed may be used (Col.9, lines 6 – 9). Havey et al. also teaches that the abrasion resistance of the coating is, in part, a function of the curing temperature and cure time, which are variables that are readily determined by those skilled in the art (Col.2, lines 39 – 55). These teachings show that the curing temperature and time are result / effective variables that determine the

degree of curing and abrasion resistance of the coating and depend on the substrate to which the material is applied. Therefore, it would have been obvious to one of ordinary skill in the art to optimize the curing temperatures and times (i.e., including the pre-curing temperature and time of the hard coating) in the process of the combination of Havey et al., Smith et al., Magne, and Smith, as result / effective variables through routine experimentation based on the degree of curing and abrasion resistance desired (e.g., either to a "tack-free" state for the pre-curing, or until fully cured) as well as the composition of the coating material and the nature of the coated substrate. The temperature and time to do so would clearly depend on a variety of factors, such as coating layer composition and thickness.

20. Claims 13 – 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith in view of Havey et al.
21. Smith teaches all the limitations of **Claims 13 and 14** as set forth above in paragraph 15, except for the thermal pre-curing and curing temperatures and times. However, it is clear from Smith that the coating should be pre-cured to be tack-free and then fully cured. Additionally, the substrate of Smith can be any of a wide variety of polymeric materials (see paragraphs bridging cols.7 and 8), and Smith also teaches that a wide range of temperatures can be utilized in the drying and curing steps (col.9, lines 1-9). Havey et al. teaches that the curing temperature and time depends on factors such as the type of lens substrate utilized (col.3, lines 38-47). Havey et al. also teaches that the abrasion resistance of the coating is, in part,

a function of the curing temperature and cure time, which are variables that are readily determined by those skilled in the art (Col.2, lines 39 – 55). These teachings show that the curing temperature and time are result / effective variables that determine the degree of curing and abrasion resistance of the coating and depend on the substrate to which the material is applied. Therefore, it would have been obvious to one of ordinary skill in the art to optimize the curing temperatures and times (i.e., including the pre-curing temperature and time of the hard coating) in the process of the Smith, as result / effective variables through routine experimentation based on the degree of curing and abrasion resistance desired (e.g., either to a “tack-free” state for the pre-curing, or until fully cured) as well as the composition of the coating material and the nature of the coated substrate. The temperature and time to do so would clearly depend on a variety of factors, such as coating layer composition and thickness. In other words, it would have been obvious to one of ordinary skill in the art to optimize the pre-curing and curing temperatures and times in the process of Smith as result / effective variables in order to achieve a coating that is first cured to a tack-free state and then fully cured, as desired by Smith. Such temperatures and times would be dependent on, for example, the substrate coated, the coating layer thickness, and the coating composition. Regarding **Claim 15**, Smith does not explicitly teach that the thermally curable coating is an aqueous organic solvent coating comprising hydrolysis products and partial condensates of an organic, epoxy functional silane, a tetrafunctional silane, a multifunctional compound, and an amount of water sufficient to hydrolyze the epoxy functional

silane and tetrafunctional silane. However, the coating of Smith is designed to be abrasion resistant (abstract). Havey et al. teaches a thermally curable aqueous organic solvent coating comprising hydrolysis products and partial condensates of an organic, epoxy functional silane, a tetrafunctional silane, a multifunctional compound, and an amount of water sufficient to hydrolyze the epoxy functional silane and tetrafunctional silane (cols.1-6) and teaches that such a composition has improved stability and forms coatings having superior abrasion resistant properties (col.1, lines 48 - 51, col.2, lines 5 - 10). Therefore, it would have been obvious to one of ordinary skill in the art to utilize the coating composition of Havey et al. as the coating composition in the process of Smith with the reasonable expectation of successfully and advantageously depositing a coating having superior abrasion resistant properties from a composition having improved stability, as taught by Havey et al.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. French et al. (USPN 4,006,271), Weber (USPN 4,191,804), and Valeri et al. (USPN 6,514,574 B1) all teach methods of coating an optical element such as a lens, the methods comprising spin-coating the lens, partially pre-curing the applied coating, and then fully thermally curing the coating.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (571)

Art Unit: 1762

272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

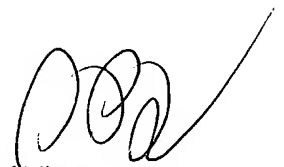
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



WDM

Wesley D Markham
Examiner
Art Unit 1762



SHRIVE P. BECK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1762